

C-18. HOT WORK PERMIT PROCEDURE

I. PURPOSE

This procedure provides guidance for persons, including the O.T.S. contractor, subcontractors, their lower-tier contractors, and NCI-Frederick representatives, who manage, supervise, and perform hot work.

II. SCOPE

This procedure covers provisions to prevent loss of life and property from fire or explosion as a result of hot work in NCI-Frederick Facilities

This procedure covers the following hot work processes;

- a. Welding and Allied Processes (Includes torch cutting, open-flame soldering, etc. - see definition in Section IV.)
- b. Heat treating
- c. Grinding
- d. Thawing pipe
- e. Powder-driven fasteners
- f. Hot riveting
- g. Similar applications producing a spark, flame, or heat
- h. Torch-applied roofing. In conjunction with the requirements of NFPA 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations.

This procedure does not cover the following;

- a. Cooking operations
- b. Electric soldering irons
- c. Design and installation of gas cutting and welding equipment covered in NFPA 51, Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes

- d. Additional requirements for hot work operations in confined spaces. These requirements are covered in the Confined Space Entry chapter of the EHS Health, Safety and Environmental Compliance Program Manual.
- e. Lockout/Tagout procedures during hot work. These requirements are covered in the Lockout / Tagout chapter of the EHS Health, Safety and Environmental Compliance Program Manual.

III. **EQUIVALENCY**

Nothing in this standard shall be intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety over those prescribed by this standard, provided technical documentation is submitted to the Authority Having Jurisdiction (AHJ) to demonstrate equivalency and the system, method, or device is approved for the intended purpose.

IV. **DEFINITIONS**

Approved - Acceptable to the Authority Having Jurisdiction.

Authority Having Jurisdiction (AHJ) - The organization, office, or individual responsible for oversight and enforcement of this procedure. For the purposes of this procedure, the AHJ is represented by a member of the NCI - Office of Management, Management Operations and Support Branch.

Designated Area - Permanent location approved for hot work operations to be performed regularly.

Fire Watch - An individual or individuals whose primary responsibility is the surveillance of all exposed areas to ensure that safe conditions are maintained during hot work. The responsibilities of the Fire Watch are further defined in Section V, Responsibility for Hot Work.

Hot Work - Any work involving burning, welding, or similar operations capable of initiating fires or explosions. Hot work operations covered by this procedure are listed in Section II, Scope.

Management - Supervisory personnel, such as foreman, managers, and supervisors, within the O.T.S. contractor, sub-contractors, and their lower-tier contractors, who are responsible for performing hot work operations. Specific Management groups are further defined in Section V, Responsibility for Hot Work.

Permit - A document issued by the Permit Authorizing Individual designated by the Authority Having Jurisdiction for the purpose of authorizing performance of a specified activity.

Permit Authorizing Individual (PAI) - The individual designated by the AHJ to authorize hot work. The PAI cannot be the hot work operator. For the purposes of this procedure, the PAI is represented by an employee of the Fort Detrick Fire and Emergency Services who is appointed to authorize activities covered by this procedure.

Shall - Indicates a mandatory requirement.

Welding and Allied Processes - Those processes such as arc welding, oxy-fuel gas welding, open-flame soldering, brazing, thermal spraying, oxygen cutting, arc cutting, flame cutting, and similar operations.

V. **Responsibility for Hot Work**

Authority Having Jurisdiction

The AHJ shall have oversight and enforcement authority for implementation of this procedure. The AHJ shall also have the authority to interpret or modify the requirements of this procedure.

Management

Management shall be responsible for the safe operation of hot work activities. For the purpose of this procedure, Management functions are performed by the O.T.S. contractor, Sub-contractors, and their lower-tier sub-contractors.

O.T.S. contractor shall;

- a. Establish permissible Designated Areas for hot work.
- b. Ensure that only approved apparatus, such as torches, manifolds, regulators or pressure reducing valves, and acetylene generators, be used by O.T.S. contract employees.
- c. Ensure that all O.T.S. contractor employees involved in the hot work operations understand and comply with the provisions of this standard.
- d. Advise sub-contractors with regard to the content of this standard, site-specific flammable materials, hazardous processes or conditions, or potential fire or otherwise hazardous conditions.

- e. Ensure that the responsibilities delineated herein for subcontractors and lower tier subcontractors are complied with.

Sub-contractors and Their Lower-Tier Contractors shall;

- a. Ensure that only approved apparatus, such as torches, manifolds, regulators or pressure reducing valves, and acetylene generators, be used by sub-contractor and lower-tier contractor employees.
- b. Ensure that all sub-contractor and lower-tier contractor employees involved in the hot work operations understand and comply with the provisions of this standard.
- c. Advise lower-tier contractors with regard to the content of this standard, site-specific flammable materials, hazardous processes or conditions, or potential fire or otherwise hazardous conditions.
- d. Ensure that all lower-tier contractors comply as required.

Permit Authorizing Individual (PAI)

The PAI (Fort Detrick Fire & Emergency Services) shall be responsible for inspection of areas where hot work is to be performed and issuance of permits for hot work activities.

Additionally, the PAI shall;

- a. Require that a Fire Watch is established at the site.
- b. Require more than one Fire Watch if combustible materials that could be ignited by the hot work operation cannot be directly observed by a single Fire Watch.
- c. Determine site-specific flammable materials, hazardous processes, or other potential fire hazards present or likely to be present in the work location.
- d. Determine that fire protection and extinguishing equipment are properly located at the site.
- e. Ensure the protection of combustibles from ignition by the following means:
 - i. Ensure the work is moved to a location free from combustibles.

- ii. If the work cannot be moved, ensure the combustibles are moved to a safe distance or have the combustibles properly shielded against ignition.
- iii. Ensure hot work is scheduled such that operations that could expose combustibles to ignition are not started during hot work operations.
- iv. **If i, ii, or iii cannot be met, then hot work shall not be performed.**

Hot Work Operator

The Hot Work Operator shall;

- a. Be trained in the safe operation of their equipment and the safe use of the process.
- b. Have an awareness of the inherent risks involved and understand the emergency procedures in the event of a fire.
- c. Handle the equipment safely and use it as described in this procedure so as not to endanger life or property.
- d. Have the PAI's approval before starting hot work operations and comply with the requirements of the permit.
- e. Cease hot work operations if unsafe conditions develop and shall notify management, the area supervisor, or the PAI for reassessment of the situation.

Fire Watch

The Fire Watch shall be an individual or individuals dedicated primarily to performing the duties of the fire watch. No other functions may be performed by the Fire Watch that may interfere with their ability to perform these duties;

The Fire Watch shall;

- a. Be present during hot work operations and remain for a minimum of 30 minutes after completion of hot work in order to detect and extinguish smoldering fires.

- b. Be aware of the inherent hazards of the work site and of the hot work.
- c. Ensure that safe conditions are maintained during hot work operations.
- d. Have the authority to stop the hot work operations if unsafe conditions develop.
- e. Have fire-extinguishing equipment readily available and shall be trained in its use.
- f. Be familiar with the facilities and procedures for sounding an alarm in the event of a fire.
- g. Watch for fires in all exposed areas surrounding the hot work operation and try to extinguish them only when the fires are obviously within the capacity of the equipment and fire-fighting skills available.
- h. If the Fire Watch determines that the fire may grow beyond control, he or she shall immediately contact the Fort Detrick Fire and Emergency Services.

VI. Hot Work Areas

Designated Area

A designated area shall be a specific area approved for such work, such as a maintenance shop or a detached outside location that is of noncombustible or fire-resistive construction, essentially free of combustible and flammable contents, and suitably segregated from adjacent areas. These designations are generally long-term for facilities in which specific operations are repeatedly performed. A Fire Watch is not normally required in a Designated Area.

Permit-Required Area

A permit-required area shall be an area that is made fire safe by removing or protecting combustibles from ignition sources. Permit-required areas are generally transient in nature during the performance of varied procedures.

VII. Hot Work Permit

Before a hot work permit is issued, the following conditions shall be verified by the PAI;

- a. Hot work equipment to be used shall be in satisfactory operating condition and in good repair.

- b. Where combustible materials, such as paper clippings, wood shavings, or textile fibers, are on the floor, the floor shall be swept clean for a radius of 35 feet (11 m). Combustible floors (except wood on concrete) shall be kept wet, be covered with damp sand, or be protected by noncombustible or fire-retardant shields. Where floors have been wet down, personnel operating arc welding or cutting equipment shall be protected from possible shock.
- c. All combustibles shall be relocated at least 35 ft (11 m) horizontally from the work site. If relocation is impractical, combustibles shall be protected with fire-retardant covers or otherwise shielded with metal or fire-retardant guards or curtains. Edges of covers at the floor shall be tight to prevent sparks from going under them, including where several covers overlap when protecting a large pile.
- d. Openings or cracks in walls, floors, or ducts within 35 feet (11 m) of the site shall be tightly covered with fire-retardant or noncombustible material to prevent the passage of sparks to adjacent areas.
- e. Conveyor systems that might carry sparks to distant combustibles shall be shielded.
- f. If hot work is done near walls, partitions, ceilings, or roofs of combustible construction, fire-retardant shields or guards shall be provided to prevent ignition.
- g. If hot work is to be done on a wall, partition, ceiling, or roof, precautions shall be taken to prevent ignition of combustibles on the other side by relocating combustibles. If it is impractical to relocate combustibles, a fire watch on the opposite side from the work shall be provided.
- h. Hot work shall not be attempted on a partition, wall, ceiling, or roof that has a combustible covering or insulation, or on walls or partitions of combustible sandwich-type panel construction.
- i. Hot work that is performed on pipes or other metal that is in contact with combustible walls, partitions, ceilings, roofs, or other combustibles shall not be undertaken if the work is close enough to cause ignition by conduction.
- j. Fully charged and operable fire extinguishers that are appropriate for the type of possible fire shall be available immediately at the work area. If existing hose lines are located within the hot work area defined by the permit, they shall be connected and ready for service, but shall not be required to be unrolled or charged.

- k. If hot work is done in close proximity to a sprinkler head, a wet rag shall be laid over the head and then removed at the conclusion of the welding or cutting operation. During hot work, special precautions shall be taken to avoid accidental operation of automatic fire detection or suppression systems (for example, special extinguishing systems or sprinklers).
- l. Nearby personnel shall be suitably protected against heat, sparks, slag, and so on.

Based on local conditions, the PAI shall determine the length of the period for which the hot work permit is valid.

VIII. Points Of Contact

To request an inspection for issuance of a Hot Work Permit, contact the Fort Detrick Fire & Emergency Services at (301) 619-2331 or (301) 619-2528.

To report a fire emergency, Dial 911.

For additional guidance for operations involving hot work, contact the Safety and Environmental Protection program at (301) 846-1451.

FIRE EMERGENCY - DIAL 911